
2002 IEEE International Geoscience and Remote Sensing Symposium and the 24th Canadian Symposium on Remote Sensing
REMOTE SENSING: Integrating Our View of the Planet
IGARSS 2002
IEEE
June 24-28, 2002
Toronto Canada

An Overview of the Earth Observing System MODIS Instrument and Associated Data Systems Performance

by

Vincent V. Salomonson, William Barnes, Jack Xiong, Steve Kempler and Ed Masuoka

NASA/Goddard Space Flight Center

Greenbelt, Maryland

***Abstract*- The MODIS instrument on the EOS Terra Mission has completed over 2 years of successful operation. Excellent data products have been developed and a full year or more of these products are now available. Validation of these products is continuing and efforts to improve product availability and access are underway. The MODIS on the EOS Aqua satellite is projected to become operational in the late spring/early summer of 2002.**

I. INTRODUCTION

The Moderate Resolution Imaging Spectroradiometer (MODIS) on the Earth Observing System (EOS) Terra Mission began to produce data in February 2000. Now a little over 2 years from that time, the instrument continues to produce good data. Nearly 40 land, oceans, and atmospheres products are achieving maturity for science and applications studies. This paper summarizes the status of the instrumentand the status of processing, archiving and dissemination of MODIS products

II. MODIS INSTRUMENT STATUS

The MODIS instrument has performed well overall. The first several months from launch to October 31, 2000 saw a lot of different adjustments in instrument parameters to reduce electronic noise, striping in some bands, band-to-band crosstalk, etc. On October 31, 2000 a stable configuration, including the operation of the instrument on the "B-side" electronics, was finalized. The instrument operated in that configuration from November 1, 2000 to June 15, 2001. On June 15, 2001 the instrument went out of operation due to a high energy proton event and stayed out of operation until July 2, 2001. Instrument operations were resumed operating on the "A-side" electronics. It was decided, based on performance, that the instrument would remain in that configuration until other factors indicated differently. Up through early March of 2002, the instrument continues to operate on the A-side. Furthermore, this configuration shows no significant differences relative to instrument performance on the B-side during November 2000 to June 2001.

During the period November 2000 to the present, the instrument shows performance at or above specifications in terms of signal-to-noise in all reflected solar bands (1-19, and 26) [1]. The noise-equivalent-delta-temperature (NEDT) performance in thermal infrared bands (20-25, 27-35) also show at or better than specification performance except for occasional channels within a band. Some striping, electronic noise, crosstalk, etc. can still be observed, particularly in short-wave infrared bands and the 1.38 micrometer band (band 26). For the most part, however, all bands provide scientifically useful performance and the Level 1 data from the instrument is considered to be validated for scientific use for the period November 2000 to the present (early March 2002 when this paper was written).

VI.SUMMARY AND CONCLUSIONS

The Terra MODIS instrument is performing well. Over 40 data products have been developed by the MODIS Science Team that are scientifically useful. These data products have been processed and a relatively complete time series completed extending from November 1, 2000 to the present. These products are distributed among the three DAAC's handing MODIS products. Substantial efforts are on-going at the Earth Sciences Data and Information System (ESDIS) Project and DAAC's to improve the user access and interfaces to make the acquisition of MODIS products as user-friendly as possible. The launch of the EOS Aqua spacecraft with a second MODIS on it is eagerly anticipated because it will complement the Terra MODIS by providing afternoon (1:30 P.M. local equator crossing time) observations. The launch date planned at the writing of this paper is April 18, 2002.